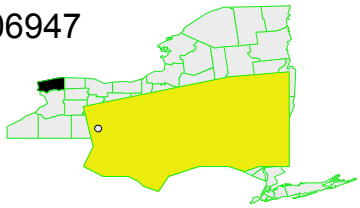
LOVE CANAL
NEW YORK
EPA ID# NYD000606947



EPA REGION 2
CONGRESSIONAL DIST. 29
Niagara County
Niagara Falls

Other Names:
Hooker Chemicals Love Canal

Site Description

The fenced 70-acre Love Canal site (Site) encompasses the original 16-acre hazardous waste landfill with a 40-acre clay/synthetic liner cap. Also, a barrier drainage system and leachate collection and treatment system is in place and operating. The Site includes the "original" canal that was excavated by Mr. William T. Love in the 1890's for a proposed hydroelectric power project but was never implemented. Beginning in 1942, the landfill was used by Hooker Chemicals and Plastics (now Occidental Chemical Corporation (OCC)) for the disposal of over 21,000 tons of various chemical wastes, including halogenated organics, pesticides, chlororbenzenes and dioxin. Dumping ceased in 1952, and, in 1953, the landfill was covered and deeded to the Niagara Falls Board of Education (NFBE). Subsequently, the area near the covered landfill was extensively developed, including the construction of an elementary school and numerous homes. Problems with odors and residues, first reported in the 1960's, increased during the 1970's, as the water table rose, bringing contaminated groundwater to the surface. Studies indicated that numerous toxic chemicals had migrated into the surrounding area directly adjacent to the original landfill disposal site. Runoff drained into the Niagara River, approximately three miles upstream of the intake tunnels for the Niagara Falls water treatment plant. Dioxin and other contaminants migrated from the landfill to the existing sewers, which had outfalls into nearby creeks. In 1978 and 1980, President Carter issued two environmental emergencies for the Love Canal area. As a result, approximately 950 families were evacuated from a 10-square-block area surrounding the landfill. The Federal Emergency Management Agency (FEMA) was directly involved in property purchase and residential relocation activities. In 1980, the neighborhoods adjacent to the Site were identified as the Emergency Declaration Area (EDA), which is approximately 350 acres and is divided into seven separate areas of concern. Approximately 10,000 people are located within one mile of the Site; 70,000 people live within three miles. The Love Canal area is served by a public water supply system; the City of Niagara Falls water treatment plant serves 77,000 people. The Site is 1/4 mile north of the Niagara River. The contamination problem discovered at the Site ultimately led to the passage of Federal legislation, governing abandoned hazardous waste sites.

On December 21, 1995, a consent decree, as a cost recovery settlement between the United States and OCC, was lodged with the United States District Court. As part of the settlement, OCC and the United States Army have agreed to reimburse the Federal government's past response costs, related directly to response actions taken at the Site. The primary portion of OCC's reimbursement is $129

million; OCC has also agreed to reimburse certain other Federal costs, including oversight costs, and to make payments in satisfaction of natural resource damages claims. In a second part of this decree, the United States Army agreed to reimburse $8 million of the Federal government's past response costs; these funds have now been directed specifically into EPA Superfund and FEMA accounts.

Also, $3 million of the settlement funds will be directed, over a six-year project period, to the Agency for Toxic Substances and Disease Registry (ATSDR) for the development of a comprehensive health study using the Love Canal Health Registry. ATSDR has awarded a grant to the New York State Department of Health (NYSDOH) to conduct this study, which is currently in its fifth year of development.

Site Responsibility: This Site is being addressed through Federal, State and potentially responsible party actions.

NPL LISTING HISTORY
Proposed Date: 10/01/81
Final Date: 09/01/83

Threats and Contaminants

As a result of the landfill containment, the leachate collection and treatment system, the groundwater monitoring program and the removal of contaminated creek and sediments and other clean up efforts, the Site does not present a threat to human health and the environment.

Cleanup Approach

This Site has been addressed in seven stages: initial actions and six major long-term remedial action phases, focusing on 1) landfill containment with leachate collection, treatment and disposal; 2) excavation and interim storage of the sewer and creek sediments; 3) final treatment and disposal of the sewer and creek sediments and other Love Canal wastes; 4) remediation of the 93rd Street School soils; 5) EDA home maintenance and technical assistance by the Love Canal Area Revitalization Agency (LCARA), the agency implementing the Love Canal Land Use Master Plan; and, 6) buyout of homes and other properties in the EDA by LCARA.

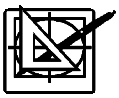
Three other short-term remedial actions: a) the Frontier Avenue Sewer remediation, b) the EDA 4 soil removal, and c) the repair of a portion of the Love Canal cap, were completed in 1993 and are discussed below.

Response Action Status

Initial Actions: In 1978, New York State Department of Environmental Conservation (NYSDEC) installed a system to collect leachate from the Site. The landfill area was covered and fenced and a leachate treatment plant was constructed. In 1981, EPA erected a fence around Black Creek and conducted environmental studies.

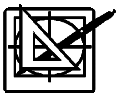
Landfill Containment: In 1982, EPA selected a remedy to contain the landfill by constructing a barrier drain and a leachate collection system; covering the temporary clay cap with a synthetic material to prevent rain from coming into contact with the buried wastes; demolishing the contaminated houses adjacent to the landfill and nearby school; conducting studies to determine the best way to proceed with further site cleanup; and, monitoring to ensure the cleanup activities are effective. In 1985, NYSDEC installed the 40-acre cap and improved the leachate collection and treatment system, including the construction of a new leachate treatment facility.

Sewers, Creeks, and Berms: In May1985, as identified in a Record of Decision (ROD), EPA implemented a remedy to remediate the sewers and the creeks which included 1) hydraulically cleaning the sewers; 2) removal and disposal of the contaminated sediments; 3) inspecting the sewers for defects that could allow contaminants to migrate; 4) limiting access, dredging and hydraulically cleaning the Black Creek culverts; and, 5) removing and storing Black and Bergholtz creeks' contaminated sediments. [The remediation of the 102nd Street outfall area, as originally proposed in the 1985 ROD, has been addressed under the completed remedial action for the 102nd Street Landfill Superfund site.] The State cleaned 62,000 linear feet of storm and sanitary sewers in 1986. An additional 6,000 feet were cleaned in 1987. In 1989, Black and Bergholtz creeks were dredged of approximately 14,000 cubic yards of sediments. Clean riprap was placed in the creek beds, and the banks were replanted with grass. Prior to final disposal, the sewer and creek sediments and other wastes [33,500 cubic yards] were stored at OCC's Niagara Falls RCRA-permitted facilities.



Thermal Treatment of Sewers and Creeks Sediments: In October 1987, as identified in a second ROD, EPA selected a remedy to address the destruction and disposal of the dioxin-contaminated sediments from the sewers and creeks: 1) construction of an on-site facility to dewater and contain the sediments; 2) construction of a separate facility to treat the dewatered contaminants through high temperature thermal destruction; 3) thermal treatment of the residuals stored at the Site from the leachate treatment facility and other associated Love Canal waste materials; and, 4) on-site disposal of any non-hazardous residuals from the thermal treatment or incineration process. In 1989, OCC, the United States and the State of New York, entered into a partial consent decree (PCD) to address some of the required remedial actions, *i.e.*, the processing, bagging and storage of the creek sediments, as well as other Love Canal wastes, including the sewer sediments. Also, in 1989, EPA published an Explanation of Significant Differences (ESD), which provided for these sediments and other remedial wastes to be thermally treated at OCC's facilities rather than at the Site. In November 1996, a second ESD was issued to address a further modification of the 1987 ROD to include off-site EPA-approved thermal treatment and/or land disposal of the stored Love Canal waste materials. In December 1998, a third ESD was issued to announce a 10 ppb treatability variance for dioxin for the stored Love Canal waste

materials. The sewer and creek sediments and other waste materials were subsequently shipped off-site for final disposal; this remedial action was deemed complete in March 2000.



93rd Street School: The 1988 ROD selected remedy for the 93rd Street School property included the excavation of approximately 7500 cubic yards of contaminated soil adjacent to the school followed by on-site solidification and stabilization. This remedy was re-evaluated as a result of concerns raised by the NFBE, regarding the future reuse of the property. An amendment to the original 1988 ROD was issued in May 1991; the subsequent selected remedy was excavation and off-site disposal of the contaminated soils. This remedial action was completed in September 1992. Subsequently, LCARA purchased the 93rd Street School property from the NFBE and demolished the building in order to return the resulting vacant land to its best use.

Home Maintenance: As a result of the contamination at the Site, the Federal government and the State of New York purchased the affected properties in the EDA. LCARA is the coordinating New York State agency in charge of maintaining, rehabilitating and selling the affected properties. Pursuant to Section 312 of CERCLA, as amended, EPA has been providing funds to LCARA for the maintenance of those properties in the EDA and for the technical assistance during the rehabilitation of the EDA. EPA awards these funds to LCARA directly through an EPA cooperative agreement for home maintenance and technical assistance. The rehabilitation and sale of these homes have been completed. Since the rehabilitation program began, approximately 260 homes have been sold. Also, a new senior citizen housing development has been constructed on vacant property in the habitable portion of the EDA. EPA expects to close out this cooperative agreement with LCARA in 2000.

Property Acquisition: Section 312 of CERCLA, as amended, also provided $2.5M in EPA funds for the purchase of properties (businesses, rental properties, vacant lots, etc.) which were not eligible to be purchased under the earlier FEMA loan/grant. EPA awarded these funds to LCARA through a second EPA cooperative agreement. EPA expects to close out this cooperative agreement with LCARA in 2000.

Short-Term Remedial Actions: 1) The Frontier Avenue Sewer Project required excavation and disposal of contaminated pipe bedding and replacement with new pipe and bedding--excavated materials have been transported for off-site thermal treatment and/or land disposal. 2)The EDA 4 Project required the excavation and disposal of a hot spot of pesticide contaminated soils in the EDA and backfill with clean soils; excavated materials were disposed of off-site. 3) The Love Canal Cap Repair required the liner replacement and regrading of a portion of the cap. These short-term remedial actions were completed in September 1993.

Cleanup Progress

In 1988, EPA issued the Love Canal EDA Habitability Study (LCHS), a comprehensive sampling study of the EDA to evaluate the risk posed by the Site. Subsequent to the issuance of the final LCHS, NYSDOH issued a Decision on Habitability, based on the LCHS's findings. This Habitability Decision concluded that: 1) Areas 1-3 of the EDA are not suitable for habitation without remediation but may be used for commercial and/or industrial purposes and 2) Areas 4-7 of the EDA may be used for residential purposes, i.e., rehabitation.

In 1998, the wastewater discharge permit issued to OCC was modified to include the treatment of the leachate water from the 102nd Street Landfill site. In March 1999, the leachate treatment facility began receiving the 102nd Street leachate water for treatment.

The following represent the make up of the various Love Canal waste materials:

Sewer and Creek Sediment Wastes	38,900 yards^3 @ 1.6 tons/yard^3 = 62,240 tons
Collected DNAPL	19,100 gallons
Filtered DNAPL	12,100 gallons
Carbon Filter Wastes	240,000 pounds
Treated Groundwater	Approx. 3.5 MG/year
Treated 102nd Street Landfill leachate water	Approx. 300,000 gal/day

OCC is responsible for the continued operation and maintenance of the leachate treatment facility and groundwater monitoring. The Site is monitored on a continual basis through the numerous monitoring wells which are installed throughout the area. The yearly monitoring results show that the Site containment and leachate collection and treatment facility are operating as designed.

As shown above, numerous cleanup activities, including landfill containment, leachate collection and treatment and the removal and ultimate disposition of the contaminated sewer and creek sediments and other wastes, have been completed at the Site. These completed actions have eliminated the significant contamination exposure pathways at the Site, making the Site safe for nearby residents and the environment.

As a result of the revitalization efforts of LCARA, new homeowners have repopulated the habitable areas of the Love Canal EDA. More than 260 formerly-abandoned homes in the EDA have been rehabilitated and sold to new residents, thus creating a viable new neighborhood.

The final disposition of the remaining vacant property in the EDA is currently being evaluated.

The Site was deemed construction complete on September 29, 1999.

Site Repository

EPA Public Information Office @ (716) 285-8842, Carborundum Center-Room 530, Niagara Falls, New York 14303.